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Redescription of a poorly known scorpionfish, *Scorpaena canariensis* (Sauvage), and a first record of *Pontinus leda* Eschmeyer from the Northern Hemisphere (Scorpaeniformes: Scorpaenidae)

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Abstract

Scorpaena canariensis (Sauvage, 1878), which has to date only been known from the holotype, is redescribed on the basis of the holotype and three newly-collected specimens. In addition, *Pontinus leda* Eschmeyer, 1969, which has to date only been known from the equator south to South Africa, is reported on the basis of three specimens collected from off Guinea-Bissau. The Guinea-Bissau specimens represent the first reliable record from the Northern Hemisphere and a range extension of approximately 3000 km from the previously northernmost record of the species. The previously recognized taxonomic characters of both species are assessed and new diagnostic characters are proposed.
Keywords: Scorpaenidae, Atlantic Ocean, *Scorpaena canariensis*, redescription, *Pontinus leda*, first record, Northern Hemisphere.

Zusammenfassung

Scorpaena canariensis (Sauvage, 1878), eine bisher nur vom Holotypus bekannte Drachenkopffischart, wird auf der Basis des Holotyps und neu gefundener Exemplare wiederbeschrieben. Außerdem wird *Pontinus leda* Eschmeyer, 1969, eine bisher nur aus dem Südostatlantik südlich des Äquators bekannte Art, aufgrund von 3 Exemplaren aus Guinea Bissau beschrieben. Die Exemplare aus Guinea Bissau stellen den ersten verlässlichen Fund der Art nördlich des Äquators dar und dehnen das bekannte Verbreitungsgebiet etwa 3000 km nach Norden aus. Die bisher bekannten taxonomischen Merkmale beider Arten werden überprüft und neue Unterscheidungsmerkmale werden vorgeschlagen.

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1 Introduction

From 16 to 21 July 2004 the Food and Agriculture Organization of the United Nations, Rome (FAO), with the support of the Instituto Español de Oceanografía, Spain (IEO), held a workshop in Tenerife, Canary Islands for the revision of the FAO species identification guide to the living marine resources of the eastern central Atlantic. Numerous fish samples have been collected from the west coast of Africa over more than a year for the workshop.

During the workshop, we examined and identified numerous specimens of Scorpaenidae and found three specimens identified as *Scorpaena canariensis* (Sauvage). Because *S. canariensis* has to date only been known from the holotype (Eschmeyer 1969; Eschmeyer & Dempster 1990) and several underwater photographs (Wirtz 1994; Brito et al. 2002), taxonomic characters of the species have remained obscure. Accordingly, we redescribe here the species in detail on the basis of the holotype and newly collected specimens.

In addition, three specimens collected from off Guinea-Bissau and identified as *Pontinus leda* Eschmeyer during the workshop are also reported here. The species has to date only been known in the eastern Atlantic from the equator to South Africa (Eschmeyer 1969, 1986; Penrith 1980; Eschmeyer & Dempster 1990). Thus, the present specimens from off Guinea-Bissau represent the first reliable record from the Northern Hemisphere and a range extension of approximately 3000 km from the previously known northernmost record of the species.

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2 Methods

Measurements follow Motomura (2004a, 2004b). Standard and head lengths are expressed as SL and HL, respectively. The last two soft rays of the dorsal and anal fins are counted as single rays, each pair being associated with a single pterygiophore. Pectoral-fin ray counts begin with the uppermost element. Scales in a longitudinal series include the near-vertical to oblique scale rows above the lateral line, taken from above the first pored lateral scale to the caudal-fin base. Pored lateral-line scales that have an external median tube are counted from the first pored scale near the upper end of the gill opening to the pored scale on the posterior margin of the hypural plate. Gill-raker counts are made on the first arch, the upper count being given

first (lower counts include raker at angle). The terminology of the head spines follows RANDALL & ESCHMEYER (2002), except that the spine occurring at the base of the uppermost preopercular spine is equivalent to "a supplemental preopercular spine" (ESCHMEYER 1965).

Specimens examined in the present study have been deposited in the Australian Museum, Sydney (AMS); Centro Oceanográfico de Canarias, Santa Cruz de Tenerife (COC); Muséum National d'Histoire Naturelle, Paris (MNHN); and Staatliches Museum für Naturkunde, Stuttgart (SMNS).

3 *Scorpaena canariensis* (Sauvage, 1878)

(Figs. 1, 2A–B; Tab. 1)

Sebastes (Sebastichthys) canariensis (Sauvage, 1878): SAUVAGE (1878: 117, pl. 1, figs. 1–2); type locality: Canary Islands.

Holotype: MNHN 7031, 142.1 mm SL; Canary Islands; WEBB & BERTHELOT.

Other material examined: COC 1.108.77.C, 120.3 mm SL; off Antequera (ca. 10 km north of Santa Cruz de Tenerife), Tenerife, Canary Islands, 120 m depth, nase (trap cage for shrimps); P. P. ALAYÓN; 28 June 2004. – COC 1.108.78.C, 109.0 mm SL; same data as COC 1.108.77.C. – COC 1.108.92.P, 128.3 mm SL; off southwest coast of La Palma, Canary Islands (28°37′N, 17°57′W), 100 m depth, nase; P. MARTIN-SOSA; 16 June 2003.

Diagnosis

A species of *Scorpaena* with the following combination of characters: pectoral fin with 16 rays (5 or 6 rays branched); longitudinal scale rows 66–69; pored lateral-line scales 25 or 26; well-exposed ctenoid scales covering entire body including pectoral-fin base and ventral body surface; lateral surface of lacrimal without spines; posterior lacrimal spine simple, directed ventroanteriorly; suborbital ridge with 2 spines; distal margin of membrane of dorsal-fin spines not strongly notched.

Description

Counts and proportional measurements as percentages of SL are given in Tab. 1. Pectoral fin with 16 rays, an uppermost ray and lower 9 or 10 rays (9 in holotype) unbranched, 5–6 rays branched. Gill rakers on lower limb 11 or 12, including 3 or 4 (4 in holotype) on hypobranchial. Branchiostegal rays 7. Vertebrae 24. Swimbladder absent.

Body moderately compressed anteriorly, progressively more compressed posteriorly. Nape and anterior body not highly arched, body relatively deep. Head large, length greater than body depth. Eyes moderately large, oriented somewhat dorsolaterally. A short tentacle, slightly longer than nasal spine, behind supraocular spine base. Tiny tentacles along posterior margin of preopercle and central cheek (absent in smallest specimen). Ctenoid scales covering central cheek, on area surrounded by pterotic spine, sphenotic spines, postorbital spines and preopercular margin, and on opercle, except for lower portion, posterior margin and between upper and lower opercular spines; other parts of head, including snout, interorbital space, occipital pit, maxilla, and underside of mandible and isthmus, not covered with scales. Ctenoid scales covering entire body, but not extending onto rays or membranes of median fins, except caudal fin. Well-exposed cycloid scales covering pectoral-fin base, those on central part extending onto basal pectoral-fin rays and membranes. Well-exposed tiny ctenoid scales covering ventral body surface, including area between pelvic fins.

Tab. 1. Meristic and morphometric characters of *Scorpaena canariensis*.

	MNHN 7031 Holotype	COC 1.108.92.P	COC 1.108.77.C	COC 1.108.78.C
Standard length (mm)	142.1	128.3	120.3	109.0
Counts				
Dorsal fin	XII, 9	XII, 9	XII, 9	XII, 9
Pectoral fin (left side / right side)	16 / 16	16 / 16	16 / 16	16 / 16
Pelvic fin	I, 5	I, 5	I, 5	I, 5
Anal fin	III, 5	III, 5	III, 5	III, 5
Longitudinal scale rows	69	68	66	67
Pored lateral-line scales	25	25	26	26
Scales above lateral line	14	15	16	16
Scales below lateral line	19	18	19	18
Scales between last dorsal spine base and lateral line	10	10	9	10
Gill rakers (upper + lower)	5+12	5+12	4+11	5+11
Measurements (percentages of standard length)				
Body depth	37.2	34.7	36.5	35.5
Body width	20.1	19.6	20.0	19.3
Head length	43.4	44.3	42.4	43.9
Snout length	13.1	12.6	12.4	11.7
Orbit diameter	12.0	12.2	11.8	13.1
Interorbital width	4.4	5.4	4.2	4.7
Upper-jaw length	23.0	21.5	20.9	20.6
Postorbital length	19.2	21.4	19.6	20.2
Predorsal-fin length	38.8	37.9	37.5	37.1
Preanal-fin length	75.4	72.6	71.8	73.1
Prepelvic-fin length	47.5	42.2	41.6	41.5
1st dorsal-spine length	6.3	6.8	7.9	8.3
2nd dorsal-spine length	10.8	13.3	14.5	15.1
3rd dorsal-spine length	19.4	19.6	20.4	21.5
4th dorsal-spine length	19.6	20.7	20.6	21.3
5th dorsal-spine length	17.1	18.9	19.1	20.2
6th dorsal-spine length	18.4	17.9	17.3	17.2
7th dorsal-spine length	16.7	16.3	16.5	16.0
8th dorsal-spine length	14.7	14.3	15.4	14.6
9th dorsal-spine length	12.2	11.7	12.6	12.1
10th dorsal-spine length	10.8	9.0	10.6	9.5
11th dorsal-spine length	9.1	8.7	8.5	8.5
12th dorsal-spine length	14.6	14.0	14.4	14.0
Longest dorsal-ray length (2nd)	19.3	19.9	19.5	19.3
1st anal-spine length	11.0	12.1	12.7	10.6
2nd anal-spine length	broken	23.5	23.9	24.1
3rd anal-spine length	19.4	18.4	20.0	18.2
Longest anal-ray length (1st)	24.3	23.9	24.3	24.2
Pectoral-ray length	36.9	32.2	31.0	31.5
Pelvic-spine length	16.8	15.4	16.5	15.3
Longest pelvic-ray length (2nd)	25.8	24.1	24.4	26.0
Caudal-fin length	28.0	27.5	25.8	27.5
Caudal-peduncle length	17.3	15.8	16.0	15.3
Caudal-peduncle depth	10.6	9.3	9.6	9.2

Fig. 1. Lateral view of head of *Scorpaena canariensis*, COC 1.108.77.C, 120.3 mm SL, Tenerife, Canary Islands (H. MOTOMURA). – Head scales are not illustrated. Scale bar: 10 mm.

Mouth moderately large, slightly oblique, forming an angle of about 20 degrees to horizontal axis of head and body. Posterior margin of maxilla reaching level between posterior margins of pupil and orbit. Lateral surface of maxilla smooth, without ridges. Upper-jaw lip narrow anteriorly, becoming broader posteriorly. Width of symphyseal gap separating premaxillary teeth bands approximately equal to width of each band. Upper jaw with a band of short, conical teeth. About 9 tooth rows at front of upper jaw, tooth band narrowing posteriorly. Tooth band of upper jaw approximately same width as that of lower jaw. About 9 tooth rows at front of lower jaw, most teeth slightly longer than those of upper jaw. Small teeth in about 3 rows forming a V-shaped patch on vomer. About 2 tooth rows on palatine. Width of vomer plate approximately equal to length of palatine plate. Lower jaw with a symphyseal knob. A pair of small pores behind symphyseal knob, underside of dentary

with 3 sensory pores on each side, last pore located on posterior margin of dentary. 1–3 slender tentacles (1 in holotype), slightly longer than width of lower lip, on anterior part of each side of ventral part of lower jaw.

Dorsal profile of snout steep, forming an angle of about 40 degrees to horizontal axis of head and body. Nasal spine simple, conical, directed upward, its length much greater than anterior nostril diameter. Anterior nostril with a long tentacle without distinct branches distally, its length greater than that of nasal spine. Ascending process of premaxilla not intruding into interorbital space, its posterior margin reaching level of posterior margin of posterior nostril. Median interorbital ridge absent. Interorbital ridges well developed posteriorly, beginning at a level behind preocular spine bases and ending level with tympanic spine bases, separated by a relatively deep channel. Interorbital ridges diverging posteriorly and then joining dorsally. Interorbital space moderately deep, about one-fifth of orbit extending above dorsal profile of head. Preocular spine simple, flattened anteriorly and posteriorly. Supraocular spine simple, located slightly posterior to vertical midline of eye, spine shorter than preocular, postocular and tympanic spines. Postocular spine simple, its length less than tympanic spine, base of former approximately same width as that of tympanic spine. Tympanic spine simple. Coronal and extra spines absent. A distinct transverse ridge (formed by bases of parietal and nuchal spines) at rear of occiput. Occiput nearly flat, but central area slightly convex. Anterior part of occiput without distinct ridge. Parietal and nuchal spines simple, both spines joined at base. Sphenotic with 1 or 2 small spines (1 in holotype). Postorbital without distinct spines. Pterotic spine simple. Upper posttemporal spine simple (or with 2 points in one specimen), pointed, small, directed dorsoposteriorly, shorter than sphenotic spine. Lower posttemporal spine simple, its base length approximately equal to those of pterotic and supracleithral spines. Supracleithral spines simple.

Lateral surface of lacrimal without spines. Anterior lacrimal spine simple, directed forward, its tip just reaching dorsal margin of upper lip. Posterior lacrimal spine simple, directed ventroanteriorly, its tip not reaching upper lip. Length of posterior lacrimal spine more than twice that of anterior spine. Suborbital ridge with 2 spines; both spines behind posterior margin of orbit. Narrow space between ventral margin of eye and suborbital ridge. Suborbital pit absent. Preopercle with 5 spines, uppermost spine simple, largest with a supplemental spine at its base, second spine smallest with narrow base, third to fifth spines with wide bases. Preopercle between uppermost preopercular spine and upper margin of preopercle smooth, without serrae or spines. Upper opercular spine simple with a low median ridge. Lower opercular spine simple with a distinct median ridge. Pored lateral-line scales associated with 2–7 tiny tentacles. No distinct tentacles on fins or other lateral surfaces of body, except on pored lateral-line scales.

Origin of first dorsal-fin spine above posterior end of lower posttemporal spine base. Posterior margin of opercular membrane reaching level at origin of fourth dorsal-fin spine. Posterior tip of pectoral fin not reaching level at origin of last dorsal-fin spine. Posterior tip of pelvic fin extending slightly beyond anus when fin depressed. Distal margin of membrane of dorsal-fin spines not strongly notched, membrane between third and fourth spines attached to basal half of fourth spine. Origin of first anal-fin spine slightly posterior to origin of last dorsal-fin spine.

Color of preserved specimens: Holotype: Head (except for black eye and white snout and jaws) and body brown. Fins translucent white, without melanin. – New-

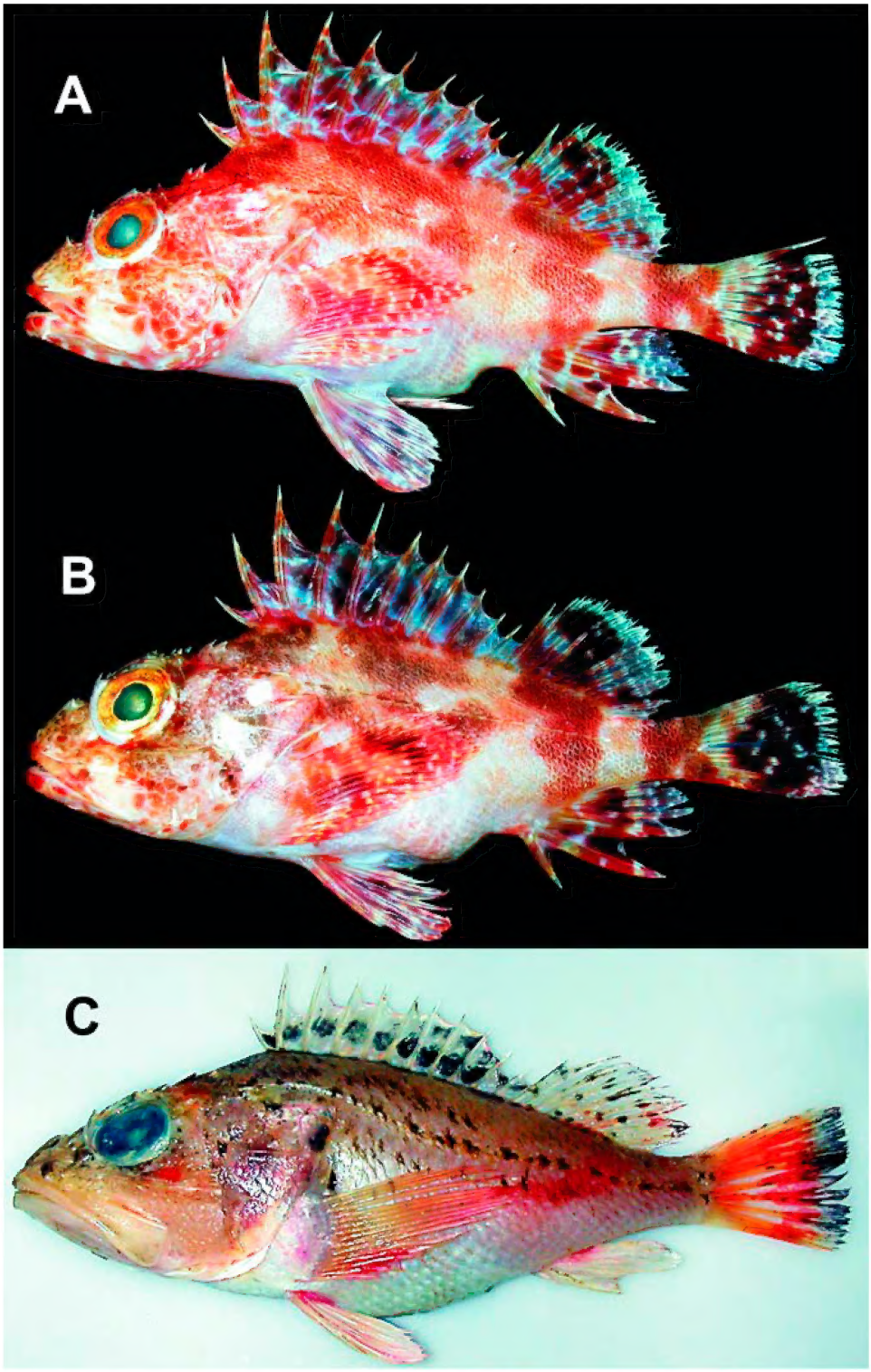

Fig. 2. Color photographs of *Scorpaena canariensis* and *Pontinus leda*. – **A**. *S. canariensis*, COC 1.108.77.C, 120.3 mm SL, male, Tenerife, Canary Islands (H. MOTOMURA). **B**. *S. canariensis*, COC 1.108.78.C, 109.0 mm SL, male, Tenerife, Canary Islands (K. MATSUURA). **C**. *P. leda*, COC 1.108.56.B1, 140.8 mm SL, off Guinea-Bissau (K. MATSUURA).

ly-collected specimens: Head yellowish white, with brown blotches and spots; jaws, lips and underside of mandible white. Body yellowish white dorsally, becoming white ventrally; 4 vertical (or slightly oblique) irregular gray bands (or elliptical blotches) dorsally, first band below first to third dorsal-spine bases, second below middle of spinous portion of dorsal fin, third below soft-rayed portion and fourth on caudal peduncle, these bands or blotches extending below lateral line (although first two bands not reaching ventral surface of body). Spinous portion of dorsal fin transparent with 2–6 indistinct gray blotches. Soft-rayed portion of dorsal fin transparent with 2 distinct gray blotches: one, larger than orbit diameter, between first and fifth soft rays; the other, smaller than pupil diameter, between seventh and ninth soft rays (absent in one specimen). Pectoral fin white without melanophores (an irregular narrow band distally and a blotch basally in one specimen); no distinct marks on inner surface or axil of pectoral fin. Pelvic and anal fins white, mottled with indistinct gray blotches. Caudal fin white with a large black blotch centrally, several small white spots on the blotch. Fresh color is shown in Figs. 2A, 2B.

Distribution and habitat

Currently known only from three groups of islands in the northeastern Atlantic Ocean: the Canary, Madeira and Azores Islands (see Remarks). Collection data of the three newly collected specimens indicate capture depths from 100–120 m, and Brito et al. (2002) reported the species inhabiting depths of 20–130 m. Underwater photographs and collection data showed *S. canariensis* to be a rocky reef species.

Remarks

Scorpaena canariensis was originally described by Sauvage (1878) as *Sebastes (Sebastichthys) canariensis* on the basis of a single specimen (MNHN 7031, holotype; see also Blanc & Hureau 1968) from the Canary Islands (precise locality unknown). Although Goode & Bean (1895) subsequently included the species in *Pontinus* Poey, Cadenat (1945) allocated it to *Scorpaena* Linnaeus with a redescription of the holotype. Eschmeyer (1969) recognized it as a valid species of *Scorpaena* in his review of the Atlantic scorpionfishes.

Since Eschmeyer (1969), no additional specimens of *Scorpaena canariensis* have been collected, the species being known only from the holotype. Our examination of the three newly-collected specimens and the holotype of *Sebastes (Sebastichthys) canariensis* showed that they represented a single species (see also Tab. 1), characterized by lacking an occipital pit, having well-exposed ctenoid scales covering the pectoral-fin base and entire ventral body surface, the posterior lacrimal spine directed ventroanteriorly, and the presence of a supplemental preopercular spine. In *Parascorpaena* Bleeker, a coastal Indo-West Pacific genus, the posterior lacrimal spine is curved forward as in *S. canariensis*, but species of *Parascorpaena* have cycloid scales.

Scorpaena canariensis and *S. maderensis* Valenciennes in Cuvier & Valenciennes are the only species of the eastern Atlantic *Scorpaena* that lack an occipital pit and have ctenoid scales covering the anteroventral surface of the body and pectoral-fin base (Eschmeyer 1969). Although Cadenat (1945) distinguished the two species by the number of cleithral spines (one in *S. canariensis* and two in *S. maderensis*), our examination of the newly collected specimens of *S. canariensis* and *S. maderensis* (see list of comparative material examined below) revealed that both species had a blunt

spine (or a bump) above the strongly pointed distinct spine on the cleithral. Accordingly, the number of the cleithral spines is not a good character for separating the two species.

As mentioned by CADENAT (1945) and ESCHMEYER (1969), *S. canariensis* can be easily distinguished from *S. maderensis* by the posterior lacrimal spine directed ventroanteriorly (see Fig. 1) as opposed to being directed ventroposteriorly in the latter [erroneously stated by ESCHMEYER (1969: 22 in key) that both spines point backwards, but correctly stated in the text under *S. maderensis* that both spines point forward in *S. canariensis*]. In addition to a difference in the posterior lacrimal spine direction, *S. canariensis* differs from *S. maderensis* in having the following characters: a much higher count of longitudinal scale rows (66–69, Tab. 1, vs. 52–56 in the latter; this study; range of *S. maderensis* from ESCHMEYER 1969), the second opercular spine small (smallest of the opercular spines, Fig. 1, vs. larger than third to fifth spines; this study), and no spots in the pectoral-fin axil (vs. numerous small black-margined white spots; ESCHMEYER 1969; this study).

Recently, WIRTZ (1994) and BRITO et al. (2002) published underwater photographs of *S. canariensis* from the Azores and Canary Islands, respectively. The fish photographed could be confirmed here as *S. canariensis* on the basis of structures of head spines, head ridges and dorsal-fin membranes as listed in Diagnosis section. BRITO et al. (2002) also mentioned that the species occurred in the Madeira Islands. Thus, *S. canariensis* is currently known from the three island groups in the North Atlantic Ocean.

Examination of the underwater photographs and newly collected specimens of *S. canariensis* (before preservation) revealed that a single white blotch on the upper end of the opercle, numerous red to brown spots on the cheek, and four vertical irregular broad bands on the lateral surface of the body (see Figs. 1A, 1B) also appear to be diagnostic for the species.

Some species of *Scorpaena* have been known to exhibit sexual dimorphism, males having a black blotch on the posterior spinous portion of the dorsal fin which females lack. Dissection of the abdomen on the right side of all newly-collected specimens of *S. canariensis*, which lack this blotch, showed them to be males indicating that the species does not exhibit this form of sexual dimorphism.

Comparative material examined of *Scorpaena maderensis* Valenciennes in Cuvier & Valenciennes: AMS I. 43382-001, 4 specimens, 34.0–67.2 mm SL; El Medano (28°02′N, 16°32′W), Punta del Medano, Tenerife, Canary Islands, 0–0.6 m depth, rotenone; R. FRICKE & D. GOLANI; 18 July 2004. – SMNS 10326, 96.4 mm SL; Playa de Papagayo (28°50′29″N, 13°48′10″W), southwest coast of Lanzarote Island, Canary Islands, 0.8–2.2 m depth; R. FRICKE; 16 May 1990. – SMNS 10354, 167.0 mm SL; 1 km east of Playa Blanca (28°51′30″N, 13°50′10″W), southwest coast of Lanzarote Island, Canary Islands, 0.3–1.5 m depth; R. FRICKE; 21 May 1990. – SMNS 12054, 72.6 mm SL; Playa de San Marcos (28°22′N, 16°44′W), north coast of Tenerife Island, Canary Islands, 1 m depth; R. FRICKE; 16 Apr. 1985. – SMNS 15292, 2 specimens, 75.6–85.9 mm SL; Playa de Charco Verde (28°34′25″N, 17°54′00″W), La Palma Island, Canary Islands, 0.5–1.5 m depth; R. FRICKE; 3 June 1994. – SMNS 15326, 83.2 mm SL; same locality as SMNS 15292, 0.8–2.8 m depth; R. FRICKE; 14 June 1994. – SMNS 15332, 89.1 mm SL; same locality as SMNS 15292, 0.5–2.8 m depth; R. FRICKE; 15 June 1994. – SMNS 15998, 2 specimens, 66.3–77.9 mm SL; 7 km east of Funchal (32°38′35″N, 16°49′15″W), Reis Magos, Madeira Island, 0.2–0.8 m depth; R. FRICKE; 14 Jan. 1995. – SMNS 16782, 104.7 mm SL; Playa del Castillo (28°23′05″N, 13°52′05″W), Fuerteventura Island, Canary Islands, 0.3–2.5 m depth; R. FRICKE; 18 June 1995. – SMNS 16966, 38.6 mm SL; off Hotel Rocamar (32°38′35″N, 16°49′05″W), Caniço de Baixo, Madeira Island, 30 m depth; P. WIRTZ; 19 Sept. 1995. – SMNS 22587, 10 specimens, 34.8–77.5 mm SL; Charco

Verde (28°34′22″N, 17°54′04″W), west coast of La Palma Island, Canary Islands, 0–4.5 m depth; R. Fricke; 19 Aug. 2000. – SMNS 22598, 15 specimens, 28.3–65.2 mm SL; Punta Malpique (28°27′19″N, 17°50′52″W), south coast of La Palma Island, Canary Islands, 0–6.5 m depth; R. Fricke; 20 Aug. 2000. – SMNS 23484, 2 specimens, 16.5–67.0 mm SL; Charco Manso (27°50′53″N, 17°55′19″W), north coast of El Hierro Island, Canary Islands, 0–3 m depth; R. Fricke; 31 May 2001. – SMNS 24268, 59 specimens, 21.6–78.7 mm SL; El Medano (28°02′N, 16°32′W), south coast of Tenerife Island, Canary Islands, 0–0.6 m depth, tidal pools; R. Fricke & D. Golani; 18 July 2004. – SMNS 24284, 4 specimens, 27.4–82.2 mm SL; Playa de las Teresitas (28°31′00″N, 16°11′20″W), east coast of Tenerife Island, Canary Islands, 0–2 m depth; R. Fricke; 19 July 2004. – SMNS 24293, 2 specimens, 33.6–86.5 mm SL; Playa de la Teyeta (28°01′45″N, 16°33′00″W), south coast of Tenerife Island, Canary Islands, 0–0.7 m depth, tidal pools; R. Fricke & D. Golani; 21 July 2004.

4 *Pontinus leda* Eschmeyer, 1969

(Figs. 2C, 3; Tab. 2)

Pontinus leda Eschmeyer, 1969: Eschmeyer (1969: 38, fig. 3a); type locality: 03°31′S, 09°53′E, southern Gulf of Guinea.

Material examined: COC 1.108.55.B1, 135.7 mm SL; off Guinea-Bissau (10°22.28′N, 16°51.11′W), 200 m depth, bottom longline; J. Aguílo on board RV Ronsel; 6 Sept. 2002. – COC 1.108.56.B1, 140.8 mm SL; same data as COC 1.108.55.B1. – COC 1.108.57.B1, 138.4 mm SL; same data as COC 1.108.55.B1.

Description

Counts and proportional measurements as percentages of SL are given in Tab. 2. Pectoral fin with 17 or 18 rays, all rays unbranched. Gill rakers on lower limb 9–12, including 2 or 3 on hypobranchial. Branchiostegal rays 7. Swimbladder absent.

Body moderately compressed anteriorly, progressively more compressed posteriorly. Nape and anterior body not highly arched, body relatively deep. Head large, length greater than body depth. Eyes moderately large, oriented somewhat dorsolaterally. No supraocular tentacle. A short, slender tentacle behind posterior end of parietal spine base in one specimen (absent in two specimens). Ctenoid scales covering head, including cheek, opercle, area between upper and lower opercular spines, interorbital space, and occiput; scales absent only on spines, ridges, eye, lacrimal, lips, maxilla, and underside of mandible. Ctenoid scales covering entire body, but not extending onto rays or membranes of median fins, except caudal fin. Well-exposed cycloid scales covering pectoral-fin base and ventral surface of body.

Mouth large, slightly oblique, forming an angle of about 20 degrees to horizontal axis of head and body. Posterior margin of maxilla reaching a vertical at posterior margin of orbit. Width of symphyseal gap separating premaxillary teeth bands greater than width of each band. Upper jaw with a band of short, conical teeth; a pair of tooth patches projecting to anterior tip of upper jaw. Vomerine and palatine teeth present. Width of vomer plate approximately 1.5 in length of palatine plate. Lower jaw with a symphyseal knob. Small pore behind symphyseal knob, underside of dentary with 3 sensory pores on each side, last pore located on posterior margin of dentary. No tentacles on underside of lower jaw.

Dorsal profile of snout steep, forming an angle of about 40–45 degrees to horizontal axis of head and body. Nasal spine simple, conical, directed posterodorsally, its length approximately equal to anterior nostril diameter. Anterior nostril with a

Tab. 2. Meristic and morphometric characters of the present specimens of *Pontinus leda*, with comparison to data of ESCHMEYER (1969).

	This study			ESCHMEYER (1969)
	COC 1.108.56.B1	COC 1.108.57.B1	COC 1.108.55.B1	n = 28
Standard length (mm)	140.8	138.4	135.7	71–163
Counts				
Dorsal fin	XII, 9	XII, 9	XII, 8	XII–XIII, 8–9
Pectoral fin (left side / right side)	17 / 17	18 / 18	18 / 17	17–18 / —
Pelvic fin	I, 5	I, 5	I, 5	—
Anal fin	III, 5	III, 5	III, 5	III, 5
Longitudinal scale rows	46	45	46	40–47
Pored lateral-line scales	24	24	24	23–24
Scales above lateral line	6	5	7	—
Scales below lateral line	10	10	11	—
Scales between last dorsal spine base and lateral line	4	4	4	—
Gill rakers (upper + lower)	14 (5+9)	19 (6+12)	19 (6+12)	17–21
Measurements (percentages of standard length)				
Body depth	35.2	34.3	33.8	32–39
Body width	17.0	18.0	18.0	—
Head length	45.4	47.5	46.6	44–51
Snout length	12.1	12.2	12.4	10–13
Orbit diameter	12.1	13.0	11.9	13–16
Interorbital width	4.4	4.9	4.7	3.6–5.5
Upper-jaw length	24.2	26.2	25.1	22–27
Postorbital length	22.8	23.7	23.6	—
Predorsal-fin length	40.6	41.2	40.7	—
Preanal-fin length	74.0	72.8	73.1	—
Prepelvic-fin length	41.5	41.9	41.6	—
1st dorsal-spine length	6.9	6.7	7.3	—
2nd dorsal-spine length	15.3	12.4	12.0	—
3rd dorsal-spine length	15.3	13.7	broken	—
4th dorsal-spine length	12.5	13.2	broken	—
5th dorsal-spine length	12.4	12.4	13.0	—
6th dorsal-spine length	12.2	12.6	12.7	—
7th dorsal-spine length	11.9	11.7	11.4	—
8th dorsal-spine length	11.4	11.3	10.7	—
9th dorsal-spine length	10.5	9.6	broken	—
10th dorsal-spine length	8.6	8.2	8.0	—
11th dorsal-spine length	7.2	6.1	6.9	—
12th dorsal-spine length	11.9	10.6	broken	—
Longest dorsal-ray length (4th)	18.5	18.5	17.3	—
1st anal-spine length	4.8	4.7	5.4	—
2nd anal-spine length	14.0	13.9	13.6	—
3rd anal-spine length	12.4	12.0	12.7	—
Longest anal-ray length (1st)	18.1	17.7	17.7	—
Pectoral-ray length	29.4	32.1	28.2	38–44
Pelvic-spine length	13.6	12.6	12.8	—

Tab. 2 (continued)

	This study			Eschmeyer (1969)
	COC 1.108.56.B1	COC 1.108.57.B1	COC 1.108.55.B1	n = 28
Longest pelvic-ray length (2nd)	21.6	21.9	22.0	—
Caudal-fin length	27.4	26.7	24.8	—
Caudal-peduncle length	19.0	20.3	19.5	—
Caudal-peduncle depth	9.9	10.9	10.8	—

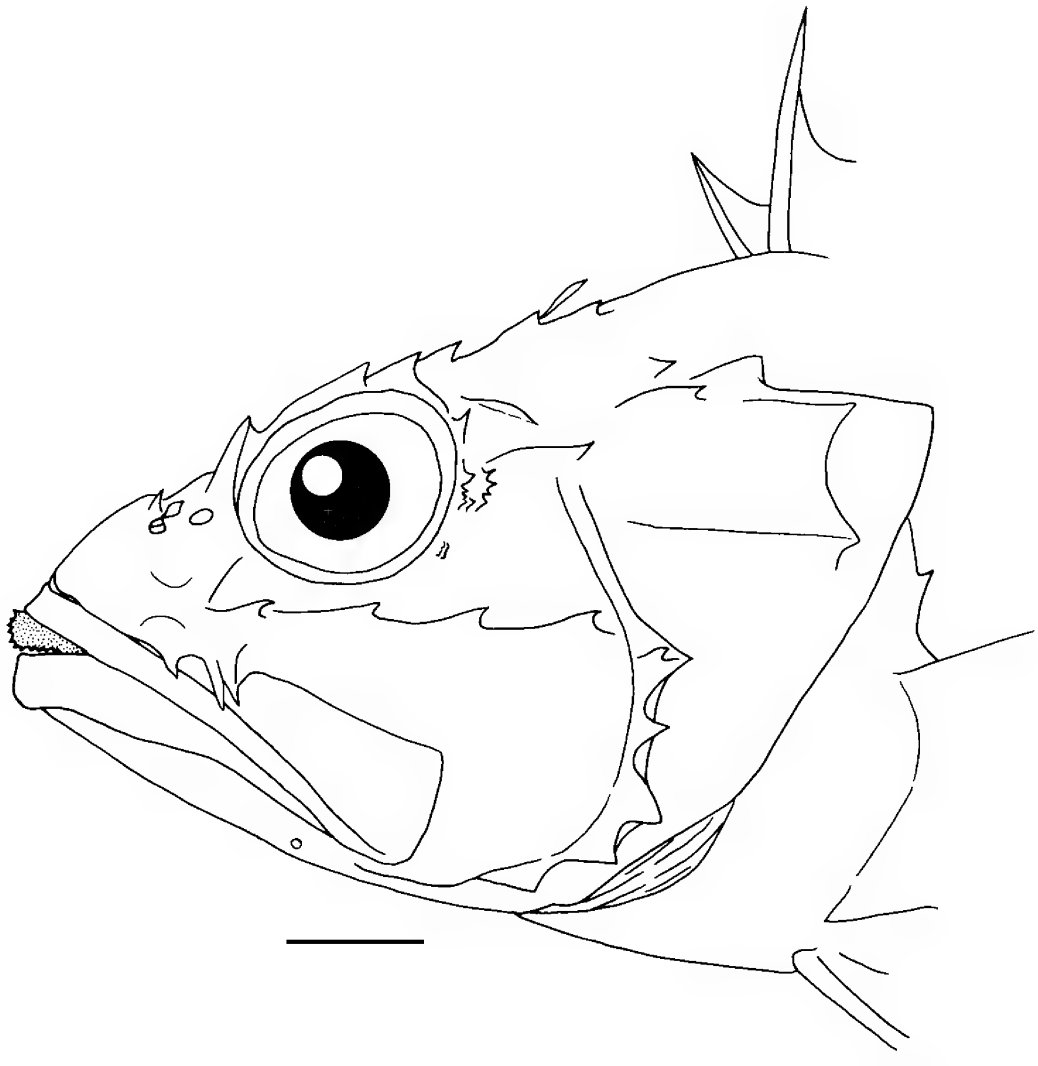

Fig. 3. Lateral view of head of *Pontinus leda*, COC 1.108.56.B1, 140.8 mm SL, off Guinea-Bissau (H. Motomura). – Head scales are not illustrated. Scale bar: 10 mm.

tentacle. Ascending process of premaxilla not intruding into interorbital space, its posterior margin reaching level of posterior margin of anterior nostril. Median interorbital ridge absent. Interorbital ridges well developed, parallel at central interorbital space, separated by a deep channel; interorbital ridges joining posteriorly to tympanic spine base. Preocular spine simple, flattened anteriorly and posteriorly. Supraocular spine simple, located slightly posterior to vertical midline of eye, spine slightly shorter than preocular, postocular and tympanic spines. Postocular and tympanic spines simple. Coronal and extra spines absent. No distinct transverse ridges either in front or rear of occiput. Occiput flat. Parietal and nuchal spines simple, both spines joined at base. Sphenotic with 1 or 2 distinct spines and 6–9 tiny spines in 2 rows. Postorbital without distinct spines. Pterotic spine simple. An oblique low ridge between bases of postocular and pterotic spines. Upper posttemporal spine simple, pointed, small, directed posteriorly. Lower posttemporal spine simple, its base length slightly less than that of pterotic spine. Supracleithral spines simple.

Lateral surface of lacrimal with a pointed spine. Anterior lacrimal spine simple, directed ventroanteriorly, its tip reaching dorsal margin of upper lip. Posterior lacrimal spine simple or with 2 points, directed ventroanteriorly. Length of posterior lacrimal spine greater than that of anterior spine. Suborbital ridge with 3 spines; first spine below eye, second and third spines behind posterior margin of orbit. Suborbital pit present, front rimmed by an oblique ridge on lacrimal extending to ventroanterior margin of orbit. Preopercle with 5 spines, uppermost spine simple, largest with a supplemental spine on its base, second spine smallest with a narrow base, third to fifth spines with wide bases. Preopercle between uppermost preopercular spine and upper end of preopercle smooth, without serrae or spines. Upper opercular spine simple without median ridge. Lower opercular spine simple with a distinct median ridge.

Posterior margin of opercular membrane below fourth dorsal spine base. Posterior tip of pectoral fin extending beyond a vertical through last dorsal spine base, but not reaching first anal spine base. Origin of pelvic spine slightly anterior to origin of uppermost pectoral ray. Posterior tip of depressed pelvic fin not reaching anus. Origin of first anal spine posterior to origin of last dorsal spine.

Distribution and habitat

Currently known from the eastern Atlantic Ocean between Guinea-Bissau and Namibia (see Remarks). The species occurs on soft bottom at depths from 100 to 400 m (Eschmeyer 1969, 1986; Eschmeyer & Dempster 1990).

Remarks

Pontinus leda was originally described by Eschmeyer (1969) on the basis of 28 specimens (71–163 mm SL) from the southern Gulf of Guinea. Our examination of the newly collected specimens from off Guinea-Bissau showed them to be consistent with Eschmeyer's original description, with the exception of pectoral-fin length (see Tab. 2). Eschmeyer (1969: tab. 9) gave the pectoral-fin length of *P. leda* as 38–44 % SL on the basis of 27 specimens, whereas that of the present specimens was 28.2–32.1 % (mean 29.9 %) SL (Tab. 2). The method of measuring pectoral-fin length in Eschmeyer (1969) is the same as in the present study (measured from the

first ray base to the apex of the fin). Furthermore, according to our calculation from a figure of a specimen (ESCHMEYER 1969: fig. 3a; holotype, 132 mm SL), the pectoral-fin length of the specimen is approximately 30.4 % of SL, which is consistent with the data (28.2–32.1 %) taken by us and is clearly outside the range (38–44 %) given by ESCHMEYER. Accordingly, we conclude that ESCHMEYER's range of pectoral-fin length is incorrect, probably caused by input errors to the frequency distribution table or misconstruction of the table by the publisher of the paper.

ESCHMEYER (1969) distinguished *P. leda* from a related co-occurring species, *P. accraensis* Norman, by several characters, one of which was coloration of the caudal fin in preserved specimens (*P. leda* had been known only from preserved specimens when originally described by ESCHMEYER). According to ESCHMEYER, the caudal fin of the preserved *P. leda* is entirely clear, or dusky distally in larger specimens, whereas that of *P. accraensis* is spotted. PENRITH (1980), however, reported the presence of some scattered dark spots on the caudal fin in a fresh specimen of *P. leda* and the spots remained in preservative (probably for very short term preservation). All our specimens when fresh also had a small number of scattered black spots (see Fig. 2C). These probably indicate that *P. leda* normally has the spots but the spots fade out after long term preservation.

Our specimens of *P. leda* had a distinct black spot, slightly smaller than pupil diameter, at the middle of each membrane in the spinous portion of the dorsal fin. We also examined many fresh specimens of *P. accraensis* during the workshop, but there were no distinct spots in the spinous portion of the dorsal fin. Although ESCHMEYER (1969) described the presence of the dorsal fin spots in *P. leda*, he did not give special attention to the character. We regard the color character as a diagnostic character that is more useful for distinguishing between these species than caudal-fin coloration. Further detailed comparisons of *P. leda* with other Atlantic congeners, including *P. accraensis*, were given by ESCHMEYER (1969).

The type specimens of *P. leda* were collected from the southern Gulf of Guinea between 00°02′S and 04°03′S (ESCHMEYER 1969). Subsequently, PENRITH (1980) reported a single specimen (198 mm SL; largest known specimen) of the species from the northwest of Rocky Point, northern Namibia at approximately 18°45–50′S latitude. The present specimens represent the first reliable record of *P. leda* from the Northern Hemisphere (approximately 3000 km northwest from the previously known northernmost record). The absence of distribution data from the northern Gulf of Guinea is probably due to inadequate sampling.

5 References

BRITO, A., PASCUAL, P. J., FALCÓN, J. M., SANCHO, A. & GONZÁLES, G. (2002): Peces de las Islas Canarias. Catálogo comentado e ilustrado, 419 pp.; Tenerife (Francisco Lemus Editor).

BLANC, M. & HUREAU, J.-C. (1968): Catalogue critique des types de poissons du Muséum national d'Histoire Naturelle (Poissons a joues cuirassées). – Publications diverses du Muséum national d'Histoire Naturelle **23**: 1–71.

CADENAT, J. (1945): Les scorpaenidae de l'Atlantique et de la Méditerranée. Première note. Le genre *Scorpaena*. – Revue des Travaux de l'Institut des Pêches Maritimes **13**: 525–563.

ESCHMEYER, W. N. (1965): Western Atlantic scorpionfishes of the genus *Scorpaena*, including four new species. – Bulletin of Marine Science **15**: 84–164.

ESCHMEYER, W. N. (1969): A systematic review of the scorpionfishes of the Atlantic Ocean (Pisces: Scorpaenidae). – Occasional Papers of the California Academy of Sciences **79**: I–IV + 1–143.

ESCHMEYER, W. N. (1986): Scorpaenidae. – In: SMITH, M. M. & HEEMSTRA, P. C (eds.): SMITHS' sea fishes, pp. 463–478; Berlin (Springer-Verlag).

ESCHMEYER, W. N. & DEMPSTER, L. J. (1990): Scorpaenidae. – In: QUÉRO, J.-C., HUREAU, J.-C., KARRER, C., POST, A. & SALDANHA, L. (eds.): Check-list of the fishes of the eastern tropical Atlantic (CLOFETA), vol. 2, pp. 665–679; Lisbon (JNICT).

GOODE, G. B. & BEAN, T. H. (1895): Oceanic ichthyology, a treatise on the deep-sea and pelagic fishes of the world, based chiefly upon the collections made by steamers "Blake", "Albatross" and "Fish Hawk" in the northwestern Atlantic. – Memoirs of the Museum of Comparative Zoology, Harvard College; vol. 1 (text), XXXV + 553 pp.; vol. 2 (atlas), XXIII + 26 pp., 123 pls.; Cambridge, Massachusetts.

MOTOMURA, H. (2004a): Revision of the scorpionfish genus *Neosebastes* (Scorpaeniformes: Neosebastidae) with descriptions of five new species. – Indo-Pacific Fishes **37**: 76 pp.

MOTOMURA, H. (2004b): A new species of scorpionfish, *Scorpaena cocosensis* (Scorpaeniformes: Scorpaenidae) from the Cocos Islands, Costa Rica, eastern Pacific Ocean. – Copeia **2004** (4): 818–824.

PENRITH, M. J. (1980): Three additions to the marine fish fauna of southern Africa. – Madoqua **12** (1): 59–62.

RANDALL, J. E. & ESCHMEYER, W. N. (2002): Revision of the Indo-Pacific scorpionfish genus *Scorpaenopsis*, with descriptions of eight new species. – Indo-Pacific Fishes **34** (2001): 79 pp.

SAUVAGE, H. E. (1878): Description de poissons nouveaux ou imparfaitement connus de la collection du Muséum d'Histoire Naturelle. Famille des Scorpénidées, des Platycéphalidées et des Triglidées. – Nouvelles Archives du Muséum d'Histoire Naturelle Paris (2) **1**: 109–158.

WIRTZ, P. (1994): Unterwasserführer Madeira, Kanaren, Azoren: Fische, 159 pp.; Stuttgart (Naglschmid).

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